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(56) Documents Cited

GB 1272225 A GB 1024896 / GB 0813375 A
US 4883767 A

(58) Field of Search

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(54) Abstract Title

Delivery guide for wire

(57) A delivery guide (1) for use in association with a drum or the like containing a coil of wire, fits within the drum or the like. The guide (1) comprises a base portion (2) which, in use, rests upon the coil of wire. The base portion (2) has a central opening (3) and is shaped into the form of an inverted funnel, the surfaces of the base portion (2) which constitute the inverted funnel being curved, the underside of the base portion (2) being convex and the upper surfaces concave.

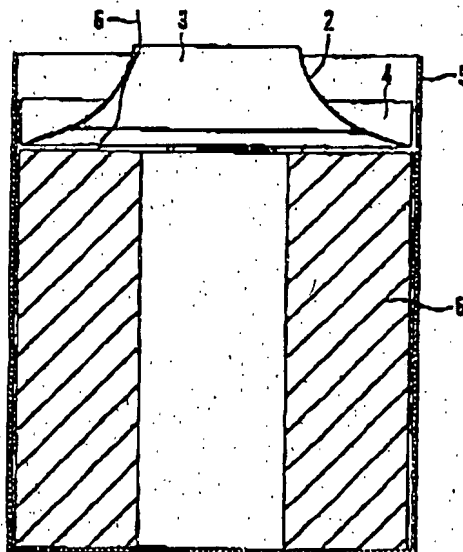


Fig.2

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1995

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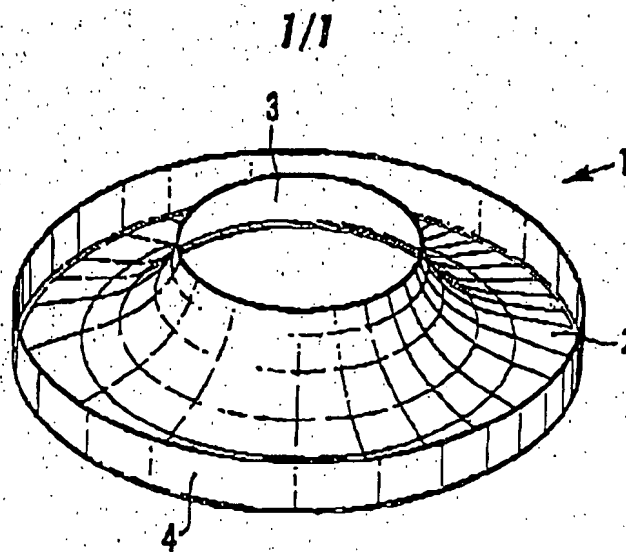


Fig. 1

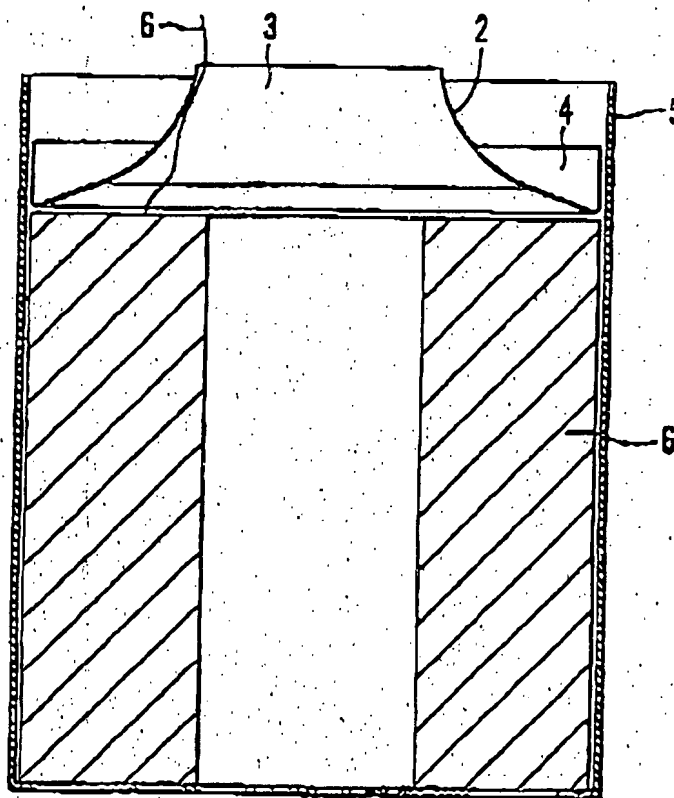


Fig. 2

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Title - Delivery Guide for Wire

This invention relates to a delivery guide for wire, in particular to a guide suitable for facilitating the delivery of welding wire from a drum of such wire to a welding machine, and to packages of wire including such a delivery guide.

Welding wire is normally supplied to a welding machine from a drum or the like containing a coil of such wire, the wire being drawn from the top of the drum and fed to the welding machine via a flexible conduit. For optimal operation of the welding machine, it is important that the wire should be drawn from the drum smoothly.

There has now been devised a delivery guide for wire, particularly welding wire, which facilitates smooth delivery of the wire.

According to the invention, there is provided a delivery guide for use in association with a drum or the like containing a coil of wire, the guide being dimensioned and configured to fit within the drum or the like and comprising a base portion which, in use, rests upon the coil of wire, the base portion having a central opening and being shaped into the form of an inverted funnel.

The delivery guide according to the invention is advantageous primarily in that it facilitates the smooth delivery of wire from a drum or the like containing a coil of wire, thereby leading, in the case of welding wire, to optimal operation of the welding machine.

The guide of the invention is preferably formed of electrically non-conducting material, most preferably of plastics material. Any suitable material having the requisite combination of properties may be used. Examples of suitable materials include polyvinylidene and acrylonitrile-butadiene-styrene. The use of non-electrically conductive material has safety advantages in that during operation of a welding machine the welding wire becomes electrically live. If the guide were of electrically conductive material then it too would become live.

The material used for the guide is preferably of sufficient thickness as to be sufficiently robust, and the guide is preferably of sufficient weight to not be dislodged from the top of the coil of wire

during normal operation. Typically, the guide is formed of material of thickness 2-5 mm, most preferably about 3mm, and has a weight of less than 1.0kg, say 0.25-0.5kg, most preferably around 0.45kg.

The guide may be manufactured by any suitable technique, but is most preferably formed by vacuum forming.

The surfaces of the base portion which constitute the inverted funnel are preferably curved, the underside of the base portion being convex and the upper surfaces concave, such that the base portion has, in side elevation, a "volcano"-type shape.

The overall diameter of the guide is preferably such that the guide is received fairly closely within the drum of wire, but not so closely that travel of the guide within the drum as the quantity of wire remaining is reduced. Typically, in a guide for use with welding wire the overall diameter of the guide is approximately 50cm, and the diameter of the central opening through which the wire is dispensed is typically less than 40cm, more commonly 30cm or less, more preferably between about 15cm and about 25cm.

The guide is most preferably provided at its perimeter with one or more upstanding formations disposed substantially perpendicular to the plane of the base of the guide. Such formation(s) serve to prevent tilting of the guide in use. Most preferably, a continuous upstanding wall (preferably with a height of between 3cm and 10cm, most preferably about 5cm) is provided around the perimeter of the guide. The wall is most preferably slightly outwardly inclined to the perpendicular, in order to facilitate stacking of the guides for storage and transportation.

According to another aspect of the invention, there is provided a pack of wire comprising a generally cylindrical drum or the like which houses a coil of wire, and a wire delivery guide disposed, in use, upon the coil or wire, the wire delivery guide being dimensioned and configured to fit within the drum or the like and comprising a base portion which, in use, rests upon the coil of wire, the base portion having a central opening and being shaped into the form of an inverted funnel.

The term "generally cylindrical" is intended to cover not only drums or the like which are circular in cross-section, but also containers which are polygonal, eg octagonal, in cross-section.

A preferred embodiment of the invention will now be described in greater detail, by way of example only, with reference to the accompanying drawings, in which

Figure 1 is a perspective view from above of a preferred embodiment of a wire delivery guide according to the invention; and

Figure 2 is a sectional view of a welding wire pack incorporating the delivery guide of Figure 1.

Referring first to Figure 1, a wire delivery guide is generally designated 1 and is vacuum-formed in 3mm thick PVC. The guide 1 has a generally circular base portion 2 with a diameter of approximately 50cm and a central opening 3 of approximate diameter 19cm.

The guide 1 also has a continuous peripheral wall 4 which is upstanding from the edge of the base portion 2. Though this is not discernible in the drawings, the wall 4 is very slightly inclined outwardly to the perpendicular to facilitate stacking of the guides 1 for transportation and storage. The base portion 2 is formed into the shape of an inverted funnel, as can be seen most clearly from Figure 2.

The guide 1 is dimensioned to fit within a cylindrical drum 5 which contains a coil of welding wire 6 (see Figure 2). In use, the drum 5 is disposed vertically adjacent a welding machine (not shown). The guide 1 rests on top of the coil of wire 6, the wire 6 being drawn through the opening 3 in the guide 1.

The wire 6 which is drawn off the coil is guided by the curved underside of the base portion 2, the point of contact of the wire 6 with the underside of the base portion 2 and the edge of the opening 3 orbiting around the centre of the drum 5 as the wire 6 unwinds from the coil. Because the underside of the guide 1 provides a continuous smooth surface the wire 6 unwin is smoothly, with no snagging.

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The guide 1 is of sufficient weight to remain in position on the top of the coil of wire 6 and is not lifted by the wire as it is drawn off. Lifting and tilting of the guide 1 is also prevented by the peripheral wall 4.

As the wire 6 in the coil is dispensed from the drum 5, and the coil becomes shorter in length, the guide 1 travels downwardly within the drum 5 until the supply of wire 6 is exhausted and the guide 1 rests on the base of the drum 5. The guide 1 may then be removed and used with another drum. Alternatively, each drum may be supplied with a guide, the guides in spent drums simply being discarded.

Although described above with particular reference to the delivery of welding wire to a welding machine, the wire delivery guide of the invention may be useful in other applications as well. One example is the manufacture of electrical cable.

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Claims

1. A delivery guide for use in association with a drum or the like containing a coil of wire, the guide being dimensioned and configured to fit within the drum or the like and comprising a base portion which, in use, rests upon the coil of wire, the base portion having a central opening and being shaped into the form of an inverted funnel.
2. A guide as claimed in Claim 1, which is formed of electrically non-conducting plastics material.
3. A guide as claimed in Claim 1 or Claim 2, which is formed of material of thickness 2-5mm and has a weight of less than 0.6kg.
4. A guide as claimed in any preceding claim, which is formed by vacuum forming.
5. A guide as claimed in any preceding claim, wherein the surfaces of the base portion which constitute the inverted funnel are curved, the underside of the base portion being convex and the upper surfaces concave.
6. A guide as claimed in any preceding claim, which is provided at its perimeter with one or more upstanding formations disposed substantially perpendicular to the plane of the base of the guide.
7. A guide as claimed in Claim 6, wherein a continuous upstanding wall is provided around the perimeter of the guide.
8. A pack of wire comprising a generally cylindrical drum or the like which houses a coil of wire, and a wire delivery guide disposed, in use, upon the coil of wire, the wire delivery guide being dimensioned and configured to fit within the drum or the like and comprising a base portion which, in use, rests upon the coil of wire, the base portion having a central opening and being shaped into the form of an inverted funnel.

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9. A delivery guide for wire, substantially as hereinbefore described and as illustrated in the accompanying Figures.

FIGURE 6

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Amendments to the claims have been filed as follows

1. A delivery guide for use in association with a drum or the like containing a coil of wire, the guide being dimensioned and configured to fit within the drum or the like and comprising a base portion which, in use, rests upon the coil of wire, the base portion having a central opening and being shaped into the form of an inverted funnel, the surfaces of the base portion which constitute the inverted funnel being curved, the underside of the base portion being convex and the upper surfaces concave.
2. A guide as claimed in Claim 1, which is formed of electrically non-conducting plastics material.
3. A guide as claimed in Claim 1 or Claim 2, which is formed of material of thickness 2.5mm and has a weight of less than 0.6kg.
4. A guide as claimed in any preceding claim, which is formed by vacuum forming.
5. A guide as claimed in any preceding claim, which is provided at its perimeter with one or more upstanding formations disposed substantially perpendicular to the plane of the base of the guide.
6. A guide as claimed in Claim 5, wherein a continuous upstanding wall is provided around the perimeter of the guide.
7. A pack of wire comprising a generally cylindrical drum or the like which houses a coil of wire, and a wire delivery guide disposed, in use, upon the coil of wire, the wire delivery guide being dimensioned and configured to fit within the drum or the like and comprising a base portion which, in use, rests upon the coil of wire, the base portion having a central opening and being shaped into the form of an inverted funnel, the surfaces of the base portion which constitute the inverted funnel being curved, the underside of the base portion being convex and the upper surfaces concave.

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8. A delivery guide for wire, substantially as hereinbefore described and as illustrated in the accompanying Figures.



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Application No: GB 9811996.9
Claims searched: 1-9

Examiner: G WERRETT
Date of search: 18 August 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications in:

UK Cl (Ed.P): D11.

Int Cl (Ed.6): B65H.

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 1272235 (NATIONAL)	1, 8.
X	GB 1024896 (BRITISH) see e.g. ring 6.	1, 8.
X	GB 0819375 (BRITISH) see e.g. flanged ring 6.	1, 8.
X	US 4869367 (KAWASAKI)	1, 8.

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
E	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.